Cognitive function in children with classic congenital adrenal hyperplasia

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Abstract:

Studies of cognitive function in patients with congenital adrenal hyperplasia (CAH) are few and controversial. This study aimed to investigate general intelligence and specific cognitive functions in children with salt wasting (SW) form of CAH and their relationship to demographic, clinical, and laboratory variables. This study included 36 children with classic 21 hydroxylase deficiency SW type of CAH (males = 12; females = 24; mean age = 15.6 ± 2.3 years). Intelligence quotient (IQ) and cognition were assessed using Wechsler Intelligence Scale for Children 3rd edition (WISC-III) and Stanford Binet Subsets Test version 4 (SBST4). Compared to controls, patients had lower mean full-scale (FS) IQ (P = 0.01) score, particularly performance IQ score (P = 0.001), and comprehension, pattern analysis, quantitation, bead memory, and memory for sentences of SBST4 (P = 0.05, P = 0.014, P = 0.001, P = 0.002, and P = 0.05, respectively). Lower IQ was observed in poorly controlled compared with well-controlled patients on medical treatment. Significant correlations were observed between FSIQ with age (r = − 0.810; P = 0.001), duration of treatment (r = − 0.887; P = 0.01), dose of glucocorticoids (r = − 0.463; P = 0.01), 17-OHP (r = − 0.543; P = 0.01) and testosterone (r = − 0.462; P = 0.006) levels, and number of hyponatremic episodes (r = − 0.350; P = 0.05). In multivariate analysis, the independent risks of low FSIQ were the dose of glucocorticoids (OR = 1.14; 95% CI = 1.08–1.23, P = 0.0001), 17- OHP levels (OR = 2.25; 95% CI = 1.19–2.85, P = 0.01), and number of hyponatremic episodes (OR = 4.34; 95% CI = 2.05–5.15, P = 0.01). Conclusion: Patients with SW form of CAH may have lower IQ and cognitive deficits which may be related to the dose of glucocorticoids, androgen excess, and number of hyponatremic episodes.

Keywords:


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